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## Colleges and Universities Develop Communications Programs

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**L**OOMING ON THE HORIZON as the means of extending the influence of colleges and universities not only to the community but to the corners of the earth are FM radio, FM facsimile, and television. Television, combining the elements of sight and sound, possesses the potentiality of an Alladin's lamp. It has been heralded as a revolution in the entertainment field and, at the same time, as a means of extending education to every part of the world.

Up to now the cost of a television station has been formidable. The initial outlay for a sending apparatus has been estimated at between one-quarter and one-half million dollars. Twenty-five years ago cost proved no deterrent to colleges and universities who wished to acquire a broadcasting station; the marvel of being able to transmit sound over long distances without the use of wires had a compelling appeal to some 150 colleges and institutions of learning. It is true that radio was in its infancy. It was an experiment, and who had better right to enter the field of experimentation than colleges? What matter if educators knew nothing about radio or producing programs. No one else knew anything about producing programs, and they felt that their chances of success were quite as good as

anyone else's. The initial cost was low, sometimes as little as \$1,000; the upkeep was low. Institutions counted upon the interest in broadcasting to get the voluntary help of faculties and student bodies, and the novelty did not begin to wear off until the duties of preparing programs and getting them on the air began to pall upon the men and women who were giving their time to keep the station going.

### Early Educational Broadcasting Stations

Out of this experiment emerged some 34 strong and progressive stations which have rendered an extraordinary service to American education over the past quarter of a century. These stations have formed the backbone of the National Association of Educational Broadcasters. Frequently they have had to struggle for audience against great odds,

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\*Chief, Educational Uses of Radio, Office of Education. Dr. Dunham has recently revised *FM for Education* (Misc. No. 7, rev. 1948), published by the Office of Education, Federal Security Agency, which contains suggestions for planning, licensing, and utilizing FM educational radio stations owned by schools, colleges, and universities.



since they were in competition for the listeners' ear with the best brains and talent presented on commercial stations. These latter stations also provided an educational fare which for the most part was developed by their network organizations as a public service. Both the Rockefeller and the Carnegie Foundations, who sensed the opportunity for developing a potent and attractive means of adult education, gave more than a million dollars to help develop sound broadcasting as an educational medium. The pioneers who lived through this period of stiff competition for the listener's ear were spread out from coast to coast and from border to border but were for the most part located at State universities, land-grant colleges, and institutions with considerable private endowment.

### **New Developments**

Four years ago with the opening up of the 88-92 megacycle band exclusively for educational purposes and with the coming of FM staticless broadcasting of high fidelity, colleges and school systems throughout the country were invited to utilize these available frequencies. Many pioneers, especially those operating in daytime only, availed themselves of these frequencies, the outstanding reason being that by this means they could carry their services into the valuable evening hours of listening. To be sure, many institutions which had not entered the radio field in the early days also became aware of the opportunity and applied for licenses in this new part of the radio spectrum. The fact that these frequencies were made available in wartime has been freely given as the reason that more progress was not made in these last few years. Not only was construction of broadcasting stations stopped, but FM receiving sets were not made available and, in fact, have not been generally available until this year.

Television stations will soon cover the principal metropolitan areas of the United States. Hearings are being held at the Federal Communications Commission to decide whether additional frequencies should be set aside for television, particularly in the less populated areas of the country. Television networks are already established and the genius and talent of America will be poured into this new field of entertainment. Since potentialities for education through television are overwhelming, our colleges and universities are once more faced with using the advances of science and have before them now another opportunity.

To date, Iowa State College at Ames is the only college to hold a television construction permit. Five other universities have applied: State University of Iowa at Iowa City; Cornell University at Ithaca, N. Y.; Loyola University at New Orleans; St. Louis University at St. Louis; while Syracuse University has been given a fully equipped television station, it as yet has no frequency assignment nor construction permit. Purdue University has for many years conducted experimental work in television, as has Creighton University at Omaha, working satisfactorily with local television outlets.

Georgia School of Technology at Atlanta, which operates the successful commercial radio station WGST, is at work on the construction of a half-million dollar building to house its AM-FM and future television station. It would be the sixth university to operate a television station should frequencies be assigned it in the coming year. All these universities have had long experience in radio broadcasting and are capitalizing on this experience in entering the field of television.

### **Campus Communication Centers**

It becomes increasingly evident that the science of producing sight and sound to convey ideas, situations, and factual knowledge for the betterment of mankind is part of a new projection of thinking. This realization has led a considerable number of universities and colleges to establish communication centers on their campuses. The first of these centers was established 2 years ago at the University of North Carolina, Chapel Hill. The University of Iowa has planned and put into operation such a center at Iowa City this year. The University of Wisconsin with the oldest station on the air at Madison has expanded its services to include four FM stations, strategically located to cover different areas of the State, and nighttime broadcasting. The set-up at Madison becomes a real communication center, even though not at present so named.

Fordham University in New York City established its communication center a year ago and at the same time set up a department of communication arts to include drama, music, radio, television, motion pictures, languages, and journalism. Seton Hall College at South Orange, New Jersey, begins the operation of a similar department this fall, and Xavier University at Cincinnati, Ohio, has already begun similar courses in communication arts. The University of Denver, Colorado, though possessing no sta-



tion has had an organized set of courses under the title of Communication Arts for nearly 5 years.

### **New FM Stations**

Universities and colleges are operating 34 regular standard AM stations; to these have now been added 24 new FM stations. The new stations are located at the University of Alabama, Tuscaloosa; John Brown University, Siloam Springs, Arkansas; University of Southern California at Los Angeles; the College of the Pacific at Stockton; Georgia School of Technology at Atlanta; The University of Chicago (Chicago Theological Seminary) at Chicago; the University of Illinois at Urbana; Indiana University at Bloomington; Iowa State College at Ames; the University of Iowa, Iowa City; University of Kentucky, Lexington; Louisiana State University at Baton Rouge; Loyola University at New Orleans; University of Michigan at Ann Arbor; Michigan State College at Lansing; St. Louis University at St. Louis; Cornell University at Ithaca; Fordham University at New York; University of Oklahoma at Norman; Oklahoma Agricultural and Mechanical College at Stillwater; University of Tulsa, Tulsa; Oregon State Agricultural College at Eugene; University of Houston, Houston; and Port Arthur College at Port Arthur, Texas. This makes a total of 24 new FM university and college broadcasting stations since the 88-92 band of frequencies was offered to education. An almost equal number of such frequencies have been assigned to public school systems (and to religious institutions) for broadcasting during school hours and after school hours for the benefit of adult education projects.

### **Low Power FM Facilities**

The investments in FM broadcast stations as well as in the regular AM broadcast stations vary from about 30,000 to 150,000 dollars. However, a new look has been given the whole educational broadcast picture by new and more lenient rules by the Federal Communications Commission, which went into effect on September 27, 1948, inviting educational institutions to utilize the new low power FM facilities.

An experiment at Syracuse University over the past 2 years proved that with power of only  $2\frac{1}{2}$  watts the university could cover a 6-mile radius from its transmitter, which was erected on the roof of the university library. This station, named WAER in honor of the Association of Education by Radio, delivers a strong signal into the schools of the sur-

rounding communities of Syracuse, as well as the city itself, during daytime hours and continues to broadcast a program of interesting material for adults in the evening.

The Federal Communications Commission, after a full study and investigation, raised the limit for this type of service to 10 watts, which will undoubtedly cover a wider area. Such a station involves the expenditure of approximately \$2,500 for transmitter and an additional \$2,500 for a single studio control room and other necessary equipment; the total may be raised to \$3,500 if a second studio is desired, or to \$4,500 for a third. This experiment received such widespread publicity that nearly 200 colleges and school systems have indicated that they plan to make applications for licenses within the 88-92 megacycle band.

### **Standardization of Radio Education**

Many universities have already sensed the necessity for adequate training in the fields of communication and have therefore established courses leading to bachelor and master degrees in these fields. There is even provision at this time for studies which conform to the usual standards leading to a doctorate. However, the mushroom growth of courses in communications and its various phases has been responsible for hundreds of inadequate courses which, when scrutinized by faculty boards, fail to justify themselves on academic grounds. Therefore, there has been formed this year the University Association for Professional Radio Education which has set up standards of admission with definite requirements in an attempt to solve this problem.

The present members of the Association are University of Alabama, University of Denver, University of Southern California, Syracuse University, Temple University, Texas College of Mines, University of Texas, and the University of Tulsa. Invariably the first 2 years of such courses follow the regular academic program of the college or university; the introduction to radio as a means of communication begins in the third year. Courses must be taught by men who have proved competent in the practical presentation of radio. Students must have daily logged broadcasting experience, and minimum requirements are set up for equipment necessary to carry on laboratory experiments.

### **Educational Broadcasting Outlets**

Notwithstanding the advantages of using a radio station owned and operated by the college or uni-



versity, many institutions have, either separately or together,<sup>1</sup> set up a successful program in adult education and even in primary and secondary education through the use of standard commercial radio outlets.

**BOSTON.**—In Boston six colleges have combined to make up the operating staff of the Lowell Institute Broadcasting Council: Harvard, Boston University, Boston College, Massachusetts Institute of Technology, Northeastern University, and Tufts College. These colleges have set up a cooperative arrangement by which they use only desirable evening time for the presentation of their programs over Boston commercial stations, many of which cover the entire New England area.

**NEW YORK CITY.**—Columbia University in New York, while abandoning the license which it has held since 1946, has organized an effective radio council which prepares professional programs for national and community enterprises. The presentations of the U. S. Public Health Service in its campaign against VD are an illustration. New York University operates a complete radio workshop, and Fordham has its own station as well as a department of communication arts.

**NEW JERSEY.**—Rutgers College at New Brunswick possesses a radio center. Princeton University, through its department of Public Affairs, carries on research in radio and accompanying problems.

**PHILADELPHIA.**—Temple University, the University of Pennsylvania, and Franklin Institute in Philadelphia are experimenting with television, having had wide experience in radio.

**DISTRICT OF COLUMBIA.**—American University, Catholic University, and Georgetown University have all entered the radio field with the presentation of programs. American University has a school of radio communications and already has a commercial television station located on its campus.

**VIRGINIA.**—The University of Virginia has become a center for preparing students in State-wide utilization of radio and motion pictures.

**THE CAROLINAS.**—The University of North Carolina has an extensive communications center with a State-wide survey just completed at its disposal for future training with the various teacher colleges of the State cooperating. The University of South Carolina becomes part of a combined project with the audio-visual department of the public schools in Columbia, S. C.

**FLORIDA.**—The University of Florida likewise

operates a station, and the Universities of Miami and Tampa utilize commercial outlets in their areas of the State.

**ALABAMA AND GEORGIA.**—The University of Alabama, Alabama Polytechnic Institute, University of Georgia, and Georgia School of Technology are all deeply involved in radio programming and the teaching of communications.

**LOUISIANA.**—Louisiana State University with its own FM station and professional direction cooperates with the State department of education as one of its many services to the community. Loyola University and Tulane provide many programs in the field of adult education. Loyola, owning and operating its station, has a successful commercial enterprise.

**TEXAS.**—The University at Austin operates a well-organized radio house and center supplying both training and programs under professional leadership. Texas Agricultural and Mechanical College carries programs over its own AM and FM stations. The University of Houston has just begun to operate its own FM station; Port Arthur College has both AM and FM outlets; and Baylor University has an AM station operating at Waco.

**ARIZONA AND NEW MEXICO.**—The State universities in Arizona and New Mexico use commercial outlets for many programs.

**CALIFORNIA.**—California is so communication-conscious that courses have been established at the San Diego State College, University of Southern California, University of California at Los Angeles, College of the Pacific, Stanford University, and the University of California at Berkeley. The University of Southern California already owns and operates an FM station, as do a number of school systems in California.

**OREGON.**—Oregon State College at Corvallis broadcasts one of the most extensive programs of service to the public in the country through its owned and operated AM station. The State University at Eugene has combined with the School District of Lane County to own and operate an FM station, while the Portland Public Schools have the oldest public school station in operation in the United States.

**WASHINGTON.**—The State College of Washington provides an extensive series of training courses in radio and operates a 5,000-watt station from Pullman.

**NORTH DAKOTA.**—A program similar to that at the State College of Washington, although on a



somewhat smaller scale, is operated at the University of North Dakota, Grand Forks.

**SOUTH DAKOTA.**—Both the University of South Dakota and the School of Mines operate their own AM stations, delivering daily service to the University and the general community of the State.

**KANSAS.**—The University of Kansas at Lawrence and Kansas State College of Agriculture and Applied Science at Manhattan represent pioneer operations in radio.

**OKLAHOMA.**—The University of Oklahoma operates AM and FM stations at Norman; the Agricultural and Mechanical College at Stillwater has AM and FM stations; and The University of Tulsa has a new FM station.

**MINNESOTA.**—The University of Minnesota has a station in Minneapolis; St. Olaf College has a station; and the colleges of St. Thomas and St. Catherine constantly provide radio programs and carry on radio courses.

**IOWA.**—Iowa is a center of radio communications activity with both AM and FM stations operating at the Iowa State College at Ames and at the State University, Iowa City. Luther College at Decorah and Boone College have long operated their own AM stations.

**ARKANSAS.**—John Brown University at Siloam Springs has both AM and FM station operations, and is the center of educational radio for Arkansas.

**WISCONSIN.**—The University of Wisconsin, in addition to operating the first AM university station, is operating four new FM stations, covering the entire State. Programs are also broadcast from the Central State Teachers College AM station at Stevens Point.

**MICHIGAN.**—Both the University of Michigan, with its high-powered FM station, and Michigan State College, where both AM and FM operations have long served the State, carry on intensive programming activities in radio facsimile and television. Detroit's Board of Education FM station has been in operation since March 1948.

**ILLINOIS.**—The University of Illinois, which has recently established an Institute of Communications Research, operates both AM and FM stations at Champaign-Urbana. Excellent training facilities for radio and television are found at Northwestern University in Chicago. A new FM station is operated by the Chicago Theological Seminary on the campus of the university.

**INDIANA.**—Purdue University at Lafayette, with its own station, and Indiana University at Bloomington are centers of radio broadcasting activity, as is Indiana State Teachers College at Terre Haute.

**OHIO.**—Ohio State University with its Ohio State Radio Institute has its own AM station and has been for years a center of radio research and activity. Cleveland is making one of the outstanding experiments in primary and secondary education, possessing an FM station which becomes at once a cooperating unit with both Cleveland College and Western Reserve University.

**KENTUCKY.**—The University of Kentucky operates its own FM station at Lexington.

### Conclusion

This is the present radio picture in the United States, so far as universities and colleges are concerned. It has been painted in some detail but would under any circumstances be inadequate since at nearly every institution of the country there is much interest in radio and the communication arts.

What of the future? The trend is definitely toward the setting up of communication centers and the combining of radio, facsimile, television, and motion pictures in one project in communications. The value of communications as a national and a world force has not been underestimated, and our university authorities have recognized its importance.

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### Scientific Review Service Expands

ANNUAL REVIEWS, INC., will add four new volumes to its roster of scientific publications, Dr. J. Murray Luck, of Stanford, announced recently. The new reviews will cover the fields of medicine, psychology, physical chemistry, and plant physiology, and publication will begin in 1950.

Annual Reviews, Inc., a nonprofit concern which has its headquarters at Stanford University, already publishes annual reviews of biochemistry, physiology, and microbiology. Outstanding scientists from all over the world are chosen each year to summarize the major research developments in their field during the past 12 months. These guest authors receive no payment for their contributions. It is the policy of Annual Reviews to use any revenue to improve the scope and quality of the publications.



## Georgia College Convention

THE GEORGIA ASSOCIATION OF COLLEGES held a summer conference from August 29 to September 1 near Clayton at a camp owned by the Georgia State College for Women. About 100 presidents, deans, and other leaders from Georgia colleges attended.

One feature of the conference was a discussion of the report of the President's Commission on Higher Education led by President Goodrich White of Emory University. William H. Kilpatrick, emeritus professor of Columbia University, gave an address on the South and the race problem. Lt. Col. L. P. Irvin of the American Military Government led a discussion on the implications of the education program in the occupied countries. A discussion of the problems of graduate education in the South was led by Ernest V. Hollis of the Office of Education, Federal Security Agency.

At the conclusion of the conference several committees were appointed to study ways of implementing in Georgia some of the recommendations of the report of the President's Commission on Higher Education. They are to report at the winter meeting.

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## Minnesota Students Study in Europe

FOR THE THIRD consecutive year, University of Minnesota students have been chosen to study in European countries during summer vacation under the Student Project for Amity Among Nations, a project designed to promote international understanding. Thirty-six students will go to England, Italy, Belgium, Netherlands, Luxemburg, Sweden, Colombia, and Quebec, Canada.

The seminar members were chosen on the basis of scholarship, knowledge and interest in public and international affairs, general leadership ability, ability to work with groups, and campus activities. They will leave the middle of June and will return to the United States by the end of September. They will be available at the university next fall quarter for speeches and discussion on what they saw and learned.

Undergraduate students chosen are given 12 university credits, and graduate students who participate in the seminar are given credits according to a special arrangement.

The university and seven other participating

Minnesota colleges have formed another association which allocates to each college, in proportion to its enrollment, the number of students which each can send under sponsorship of the project. Approximately 90 college students from throughout Minnesota will participate in this project next summer. Colleges belonging to the association, in addition to the university are: Hamline, Macalester, Carleton, St. Olaf, Augsburg, St. Cloud Teachers College, and Gustavus Adolphus.

Subjects which the students will study in the different countries include everything from political parties to aspects of education and of economic life. To prepare for their trip, the students selected will spend much of their time until June studying the background, habits, and language of the countries they will visit.

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## School of Human Relations

A SCHOOL OF HUMAN RELATIONS has been established at St. Michael's College in Vermont. The school is designed for students at the junior and senior level and has as its purpose the development of understanding and cooperation among all social and economic groups. Lectures at the school are to be given by men and women of regional and national reputation.

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## National Scholarships at Columbia College

ALL SECTIONS of the United States are represented by the 24-high school and preparatory school graduates who have begun their studies as national scholars at Columbia College this term as members of the class of 1952. They come from 17 States, Hawaii, and Canada.

Winners of 4-year scholarships, valued at from \$600 to \$1,200 annually, these students constitute the first group of national scholarship holders to come to the college under an expanded scholarship plan.

Placed in operation after a year of extensive preparation, the program will eventually bring a total of 120 students to the college to study under a 4-year scholarship plan. When that number has been reached, at a cost to the college of more than \$100,000 a year for this particular scholarship program, 30 national scholars will thereafter be named annually for admission to the freshman class.



# Earned Degrees Conferred by Institutions of Higher Education, 1947-48

By ROBERT C. STORY\*

**UNPRECEDENTED ENROLLMENTS** in United States colleges and universities during the fall of 1947 were matched by the unprecedented number of degrees conferred during the year 1947-48 (see table 1). Approximately 314,000 degrees were conferred during this period; this exceeded the previous record (set in 1939-40) by almost 100,000.

A survey of earned degrees completed by the Office of Education reveals that almost 268,000 students received the bachelor's degree and that slightly more than 46,000 received advanced degrees. Institutions responding in the survey numbered 1,197. Estimates were made for the 15 nonreporting institutions to arrive at national totals. Six institutions for which estimates were made enrolled between 500 and 900 students each. The nine remaining institutions enrolled fewer than 500 students each. None of the nonreporting institutions offered work beyond the baccalaureate level.

**Table 1.—Degrees conferred during 1947-48 compared with the largest number in any previous year**

Level of degree	1947-48	Previous record	Percent of increase
Bachelor's and first professional.....	267, 996	186, 500 (1939-40)	43. 7
Master's and second professional.....	42, 023	26, 731 (1939-40)	57. 2
Doctor's.....	4, 179	3, 497 (1941-42)	19. 5

There was little difference between the number of bachelor's degrees conferred by publicly controlled institutions and those under private control (see table 2).

\*Educational Statistician, Office of Education. The survey was made under the direction of John Dale Russell, Director, Division of Higher Education.

**Table 2.—Number of degrees conferred by colleges and universities for year ending June 30, 1948, by type of control of institution and level of degree**

Type of control	Bachelor's and first professional	Master's and second professional	Doctor's
Public.....	134, 256	17, 712	1, 676
Private.....	133, 740	24, 311	2, 503
Total.....	267, 996	42, 023	4, 179

The survey was designed to secure from each institution information regarding the level of degrees conferred, according to sex of the degree-recipients and separately for each major field of study. The detailed results are given in table 3. On the bachelor's level most degrees were conferred in business and commerce, 37,035; in engineering, 29,758, and in education 29,550. The leading fields of study on the master's level were education, engineering, and business and commerce in the order named. Chemistry led all other fields on the doctorate level, followed by education and by business and commerce.

The universities granting the largest numbers of degrees included: New York University, 7,590; University of Minnesota, 6,359; University of California, 6,307; University of Michigan, 5,801; University of Illinois, 5,797; University of Wisconsin, 4,731.

English was the subject in which the greatest number of institutions conferred bachelor's degrees. The six leading subjects, by numbers of institutions, were as follows: English, 762; history, 694; chemistry, 692; education, 667; mathematics, 633; and biology, 604.

Detailed information outlining the number of degrees conferred by individual institutions, in each field of study, will be published separately (to be announced).



**Table 3.—Earned degrees conferred by colleges and universities for year ending June 30, 1948 by major field of study, by level of degree, and by sex**

Major field of study	Bachelor's and first professional <sup>1</sup>			Master's and second professional <sup>2</sup>			Doctor's <sup>3</sup>		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Agriculture.....	5,023	4,910	113	759	746	13	126	123	3
Anatomy.....	111	100	11	28	22	6	9	7	2
Animal husbandry.....	552	541	11	92	92	0	10	10	0
Anthropology.....	145	62	83	40	22	18	16	14	2
Architecture.....	1,015	896	119	137	131	6	2	2	0
Astronomy.....	13	10	3	9	6	3	9	6	3
Bacteriology.....	552	196	356	170	114	56	60	48	12
Biochemistry.....	241	208	33	118	93	25	57	51	6
Biology.....	6,735	4,292	2,443	326	212	114	63	53	10
Botany.....	332	168	164	163	113	50	66	55	11
Business and commerce.....	37,035	31,049	5,986	2,221	1,872	349	41	38	3
Chemistry.....	7,199	5,160	2,039	1,324	1,114	210	525	497	28
Dentistry.....	1,625	1,588	37	75	75	0	51	51	0
Economics.....	8,672	7,394	1,278	894	776	118	113	103	10
Education.....	29,550	8,315	21,235	11,772	6,603	5,169	464	386	78
Engineering (total).....	(29,758)	(29,578)	(180)	(4,077)	(4,068)	(9)	(244)	(244)	(0)
Aeronautical.....	1,515	1,500	15	347	345	2	36	36	0
Chemical.....	3,578	3,516	62	886	886	0	71	71	0
Civil.....	4,137	4,120	17	561	559	2	29	29	0
Electrical.....	6,359	6,335	24	719	717	2	29	29	0
Mechanical.....	8,812	8,786	26	593	593	0	17	17	0
Other engineering.....	5,357	5,321	36	971	968	3	62	62	0
English.....	12,294	4,267	8,027	1,969	1,000	969	167	118	49
Entomology.....	31	23	8	73	70	3	13	12	1
Fine arts.....	3,471	930	2,541	459	247	212	13	8	5
Forestry.....	805	799	6	186	186	0	10	10	0
Geography.....	325	206	119	153	109	44	16	14	2
Geology.....	1,130	999	131	298	280	18	54	52	2
History.....	9,036	5,570	3,466	1,493	1,033	460	149	124	25
Home economics.....	7,073	97	6,976	526	6	520	11	2	9
Industrial arts.....	1,470	1,399	71	236	227	9	1	1	0
Journalism.....	3,298	1,985	1,313	247	197	50	0	0	0
Language, classical.....	487	292	195	125	77	48	16	10	6
Language, modern—foreign (total).....	(3,588)	(852)	(2,736)	(647)	(307)	(340)	(82)	(60)	(22)
French.....	1,238	269	969	194	91	103	26	19	7
German.....	324	157	167	65	39	26	18	14	4
Spanish.....	1,739	300	1,439	224	79	145	14	8	6
Russian.....	7	3	4	5	4	1	0	0	0
Other languages.....	280	123	157	159	94	65	24	19	5
Law.....	10,709	10,308	401	393	365	28	247	239	8
Library science.....	1,531	388	1,143	120	34	86	5	4	1
Mathematics.....	4,177	2,562	1,615	685	543	142	117	111	6
Medicine.....	6,714	5,970	744	258	233	25	10	9	1
Metallurgy.....	324	322	2	94	94	0	11	11	0
Music.....	5,217	1,735	3,482	1,039	628	411	27	22	5
Natural science.....	2,078	1,548	530	39	25	14	3	3	0
Nursing.....	3,158	27	3,131	200	0	200	0	0	0
Optometry.....	1,425	1,385	40	0	0	0	0	0	0
Pharmacy.....	2,076	1,633	443	76	68	8	22	21	1
Philosophy.....	1,697	1,377	320	237	207	30	46	40	6
Physical education.....	5,058	3,085	1,973	918	665	253	18	11	7
Physics.....	2,007	1,849	158	659	618	41	180	174	6
Physiology.....	131	47	84	76	64	12	29	23	6
Political science.....	4,482	3,466	1,016	769	639	130	92	83	9
Psychology.....	5,980	2,595	3,385	1,176	660	516	144	115	29
Public Health.....	271	5	266	440	304	136	74	56	18
Religion and theology.....	3,968	2,988	980	1,144	812	332	192	186	6
Social science.....	2,472	1,424	1,048	128	81	47	0	0	0
Social work.....	1,131	258	873	1,677	527	1,150	9	8	1
Sociology.....	6,151	1,751	4,400	426	284	142	64	52	12

See footnotes at end of table.



**Table 3.—Earned degrees conferred by colleges and universities for year ending June 30, 1948 by major field of study, by level of degree, and by sex—Continued**

Major field of study	Bachelor's and first professional <sup>1</sup>			Master's and second professional <sup>2</sup>			Doctor's <sup>3</sup>		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Speech and dramatic arts.....	2, 418	805	1, 613	532	261	271	47	36	11
Veterinary medicine.....	242	229	13	16	16	0	2	2	0
Zoology.....	2, 076	1, 331	745	330	231	99	72	53	19
Arts (major not specified).....	8, 573	5, 494	3, 079	646	453	193	74	62	12
Sciences (major not specified).....	1, 513	1, 273	240	29	22	7	0	0	0
All other.....	10, 851	7, 011	3, 840	1, 299	967	332	306	252	54
Total.....	267, 996	172, 752	95, 244	42, 023	28, 599	13, 424	4, 179	3, 672	507

<sup>1</sup> Bachelor's and first professional degrees. In addition to the B. S. and B. A. degrees, such degrees as M. D., LL. B., D. D. S., and B. D. are included.

<sup>2</sup> Master's and second professional degrees. In addition to the M. S. and M. A. degrees, such degrees as M. B. A., M. C. E., M. Chem. E., and Th. M. are included.

<sup>3</sup> Included in this level are such degrees as Ph. D. and Ed. D.

## Staff of the Higher Education Division

THE HIGHER EDUCATION DIVISION of the Office of Education, with the recent addition of 5 persons, now consists of 12 professional staff members and 12 clerical and stenographic staff members. In addition, a total of 17 persons (9 professional and 8 clerical and stenographic) are on temporary appointment or are working on special projects which are supported by non-Government funds.

### Recent Additions

Within the past year the following persons have joined the staff.

*William H. Conley*, specialist for junior colleges and lower divisions. Dr. Conley was formerly dean of Wright Junior College in the public school system of Chicago. More recently, following service in the Standards and Curriculum Division of the United States Navy, he served as dean of the School of Commerce, Loyola University (Chicago).

*Claude E. Hawley*, associate chief for social sciences. Dr. Hawley has taught political science at Northwestern University and at the Universities of Florida, Missouri, and Southern California. During World War II he served on the psychological warfare staff of Gen. Douglas MacArthur, and subsequently for 2 years as administration adviser to the mayor of Los Angeles.

*Fred J. Kelly*, specialist for land-grant colleges and universities. Dr. Kelly has a long record of service in colleges and universities. Among his positions have been: Dean of School of Education and director of summer session, University of Kansas; dean of administration, University of Minnesota; and president of the University of Idaho. In 1931 he became chief and later director of the Higher Education Division of the Office of Education. Upon his retirement in 1946 he moved to Palo Alto, Calif., where he has resided until recently. The death of Mrs. Kelly in August 1948 altered Dr. Kelly's plans, and he has become willing to join the staff of the Higher Education Division.

*J. Laurence Phalan*, specialist for economics. Dr. Phalan has taught at Boston College, Boston University, and Middlebury College. He was formerly New England regional economist for the Office of Price Administration and the National Housing Agency, and for several years he was with the United States Department of Labor.

*Jennings B. Sanders*, specialist for history. Dr. Sanders was formerly head of the department of history at the University of Tennessee and later president of Memphis State College. He has also held regular appointments at Denison University, the University of Chicago, and the University of



Alabama, and temporary appointments at the George Peabody College for Teachers and the University of Washington.

### Other Staff Members

Members of the staff who have been with the Office of Education for some time are:

*John Dale Russell*, director of the Division.

*Henry H. Armsby*, specialist for engineering education.

*Lloyd E. Blauch*, associate chief for education in the health professions (formerly specialist for land-grant colleges and universities and recently assigned part time to the Pharmaceutical Survey as assistant director in charge of curriculum studies).

*Ambrose Caliver*, specialist for higher education of Negroes and adviser on related problems, and director of Project for Adult Education of Negroes.

*Ernest V. Hollis*, associate chief for college and university administration (formerly specialist for State-wide planning of higher education and temporarily assigned as chief, Veterans' Educational Facilities Program).

*Elizabeth N. Layton* and *Theresa B. Wilkins*, research assistants.

### Vacancies

The following positions are vacant at the present time: Associate chief for physical science and mathematics, specialist for college and university business management, specialist for geography, and specialist for teacher education.

## School of Public Health at Pittsburgh

THE UNIVERSITY OF PITTSBURGH has received a \$13,600,000 gift from the A. W. Mellon Educational and Charitable Trust for a new Graduate School of Public Health. The donors consider the setting up of the school "an effective answer to a basic, vital need of the people of the Pittsburgh area . . . and of all mankind."

Simultaneously, Chancellor R. H. Fitzgerald of the university announced the appointment of Dr. Thomas Parran, former Surgeon General of the United States Public Health Service, as first dean of the new school and as consultant to the chancellor on the medical sciences.

The new school will be like 10 other schools of public health in other areas: Harvard University,

Yale University, Columbia University, Johns Hopkins University, University of North Carolina, University of Michigan, University of Minnesota, Tulane University, University of California, and University of Toronto.

The new Graduate School of Public Health will be part of the University's Medical Center (eight hospitals adjacent to the campus—private, city, State, Federal—and other hospitals in other parts of Pittsburgh affiliated with them). The program developed by the dean and his staff will receive the cooperation of the older schools and divisions of the university: Medicine, dentistry, pharmacy, nursing, social work, graduate, biochemistry, psychology, physics, engineering, and business.

## Income of Student Organizations

CAMPUS ORGANIZATIONS are climbing into the "big business" class at Ohio State University. A recent audit reported that the income of fraternities, sororities, and other campus groups came to more than \$2,000,000 during the 1947-48 fiscal year. The 62 fraternities on the campus accounted for \$1,307,000 of this sum; 23 sororities had an income of \$429,000; and some 270 other campus organizations reported income of \$330,000.

The annual financial check-up on student groups was conducted by the office of the auditor of student organizations, a division of the dean of men's office. A staff of 10 supervises the financial policies of all campus organizations which have student-controlled treasuries.

## Betatron for Cancer Research

THE WORLD'S FIRST INSTALLATION of a 20-million-volt betatron for cancer treatment and research will be made at the University of Illinois college of medicine in the Medical Center District on Chicago's west side. The university will pioneer in medical use of this instrument, science's newest source of high-energy X-rays and electrons. The betatron was invented in 1940 by Prof. Donald W. Kerst of the university's physics department at Urbana-Champaign.

This new cancer weapon will be housed in a small building, 26 by 48 feet, which will contain room for patients, a magnet room, control room, mechanical equipment room, and a transformer vault. Most of the structure will be underground.



# Navy College Aptitude Test

By HENRY K. MOULTHROP\*

ONE of the newer fitness-for-college tests now being used on a large scale in the educational field is the Navy College aptitude test. All candidates for the Naval Reserve Officers' Training Corps are required to take this examination, which is given annually about mid-December throughout the United States and its Territories.

## The Test

Constructed each year for the Navy Department by the naval examining section of the Educational Testing Service (formerly the College Entrance Examination Board), Princeton, N. J., the test is objective and designed to measure a candidate's ability to handle college work. As it is primarily an aptitude test, no special preparation is required. There are several kinds of questions in the test, most of which are illustrated in an annual information bulletin.

Section 1 measures the candidate's understanding of words and his skill in dealing with word and thought relationships. Section 2 measures his ability to read with understanding and to draw correct inferences from a variety of passages. Section 3 examines the extent to which the student has observed and comprehended the operation of scientific principles in everyday life. In Section 4 the candidate must discover characteristics common to certain figures or designs. This section of the test measures ability to reason logically in terms of abstract material. Section 5 tests ability to apply basic mathematical techniques (including elementary algebra and geometry) in reasoning out solutions to quantitative problems. The examination includes approximately 250 questions and takes about 3 hours to complete.

## Scoring and Use

Complete examinations are scored by the naval examining section. No passing score is set for this type of examination. A cutting score is established each year which results in the procurement of sufficient candidates above this score to fill the annual quota.

\*NROTC Section, Training Division, Bureau of Naval Personnel.

Because of the large number of candidates taking the test each year, applications must arrive at Princeton by a specific date, usually 15 November. Also, because of the size of the group and the expense involved, scores on the test are not given to any applicants. Test scores of those candidates who are finally selected for the program are sent to the 52 colleges and universities to which the candidates are assigned. Inasmuch as all papers are graded twice, once by machine and once by hand, candidates are advised not to request rechecks.

Applicants are notified whether or not they have qualified on the test for further consideration during late January or early February of the following year.

The test is the property of the Navy Department and is classified as "Restricted."

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## Language Instructors Learn Student View

TAKING A LONG WAY AROUND, 20 new instructors have prepared to teach European languages at Cornell University by learning an Asiatic tongue—Hindustani. Operating on the principle that the best preparation for teaching is a knowledge of what it feels like to receive instruction, J. Milton Cowan, director of Cornell's Division of Modern Languages, conducted a short course in the Indic tongue for the new staff members. Hindustani was chosen because it was totally unfamiliar to the group, which represented 11 nationalities and 5 different European languages.

The idea was a success, according to Dr. Cowan. He says the instructors acquired a "student point of view" and a sense of humility—a virtue he terms a teaching "must"—in addition to learning how to ask their way to the restaurant, hotel, or railroad station in Hindustani.

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## Ohio State's Seventy-fifth Anniversary

THE IMPORTANCE and place of science and education in the development of a democracy is being emphasized this fall in a program initiating a year-long celebration of Ohio State University's seventy-fifth anniversary.



## NEW PUBLICATIONS

### Non-Government Publications

#### Pamphlets

*The Need for Higher Education in New York State*, by Charles M. Armstrong. Albany, University of State of New York Press, 1948. 131 p. (Bulletin No. 1350, August 16, 1948.)

One of a series of studies of needs and resources of higher education in New York State conducted by the Division of Research of the New York State Education Department. Analyzes educational needs of both the individual and society. Chapters on: Youth's Need for College Education; Demand for Higher Education on the Part of Society; Occupational Objectives of Students Compared to College Majors; Occupational Demand; and Implications for the Future of Higher Education. Discusses industrial trends and occupational opportunities for college graduates. Appendix contains tables on educational background of New York State employees and those seeking employment.

*A Report on the Functions, Services, and Needs of the College of Education of the Louisiana State University and Agricultural and Mechanical College*, by W. A. Lawrence, M. S. Robertson, and May W. DeBlieux. Baton Rouge 3, The Bureau of Educational Materials, Statistics, and Research of Louisiana State University and Agricultural and Mechanical College, 1948. 98 p.

Reports on 8-year study of the functions, services, and needs of the College of Education of Louisiana State University. In five sections: (1) The Functions of the College of Education of Louisiana State University; (2) Services Rendered to Education in Louisiana; (3) An Evaluation of the Teacher Training Program of the College of Education; (4) Current Needs; and (5) Reorganization of Curricula.

*U. S. National Student Association. Program and Report, 1948-49*. Madison (304 N. Park St.) 5, Wis., The Association, 1948. 40 p. (Vol. II, No. 1, September 1948.) 15 cents.

Reports on the First National Student Congress held at the University of Wisconsin, August 23-28, 1948. Subjects covered by the Congress included: Student Life; Educational Problems; International Affairs; Implementation of program for coming year. Includes lists of national and regional officers of USNSA; institutions sending observers to Congress, and other publications of the USNSA.

#### Books

*College Publicity Manual*, edited by W. Emerson Reck. New York; Harper and Bros., 1948. 246 p.

A series of chapters by various authors. Emphasizes specific techniques; analyzes sources of news and how to gather and pre-

sent the news effectively. Discusses over-all function of publicity office. Illustrates use of publicity in such college activities as fund raising and athletic events.

*Education for Professional Responsibility*. A report of the Proceedings of the Inter-Professions Conference on Education for Professional Responsibility held at Buck Hill Falls, Pa., April 12, 13, and 14, 1948. Pittsburgh: The Carnegie Press, 1948. 207 p.

Reports a conference held for the interchange of experience and ideas by teachers in schools of divinity, medicine, law, engineering, and business; contains papers presented. The three sessions of conference covered: The Objectives of Professional Education; Content and Method in Professional Education; and Social and Humanistic Aspects of Professional Education.

*A Health Program for Colleges*. A report of the Third National Conference on Health in Colleges held in New York, May 7-10, 1947. New York, The National Tuberculosis Association, 1948. 152 p. \$2.

Nineteen working committees made up of delegates from more than 200 colleges and universities drew up recommendations for the continued improvement of health conditions and opportunities in institutions of higher learning. Similar meetings had been held in 1931 and 1936. The appendix contains a report of current college health practices.

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